

formed of at least one of an inorganic material or different polymer materials.

100. (Amended) The polarizer of claim 97, further comprising a light reflecting layer.

101. (Amended) The polarizer of claim 97, wherein the birefringent anisotropically absorbing layer is formed on a surface of a substrate.

102. (Amended) The polarizer of claim 101, wherein the substrate is a birefringent plate or film having a main optical axis and the birefringent anisotropically absorbing layer is at an angle of 45° relative to the main optical axis of the substrate.

135. (Amended) The polarizer according to claim 97, wherein the at least one birefringent anisotropically absorbing layer formed of at least one organic salt of a dichroic anionic dye has the general formula:

{**Chromogen**} - (XO⁻M⁺)_n, where **Chromogen** is a dye chromophore system; X = CO, SO₂, OSO₂, OPO(O⁻M⁺); M = RR'⁺NH[2]₂RR'R''NH; RR'R''R⁺N; RR'R''⁺P wherein R, R', R'', R⁺ = CH₃, C₁C₂H₄, C₂H₅, C₃H₇, C₄H₉, C₆C₅H₂, substituted phenyl or heteroaryl; YH-(CH₂-CH₂Y)_m-CH₂CH₂, Y=O, or NH, m=0-5; N-alkylpyridinium cation, N-alkylchinolinium cation, N-alkylimidazolinium cation, or N-alkylthiazolinium cation; n = 1-7; or of at least one asymmetric mixed salt of a dichroic anionic dye with different cations of general formula:

(M₁⁺O⁻X'-)_m[M₁⁺O⁻X'-(CH₂)_p-Z]_g{**Chromogen**}-[Z-(CH₂)_p-XO⁻M⁺]_f(-XO⁻M⁺)_n, wherein: **Chromogen** is a dye chromophore system; Z = SO₂NH, SO₂, CONH, CO, O, S, NH, CH₂; p = 1 - 10; f = 0-9; g = 0-9; n = 0-9, m = 0-9, n+f = 1-10; m+g = 1-10; X, X' = CO, SO₂, OSO₂, PO(O⁻M⁺); M ≠ M₁, M, M₁ = H; inorganic cation of the following type: NH₄, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co; organic cation of the following type: RNH₃, RR'NH₂, RR'R''NH; RR'R''R⁺N, RR'R''R⁺P, wherein R, R', R'', R⁺ = alkyl or substituted alkyl of the following type: CH₃, C₁C₂H₄, HOC₂H₄, C₂H₅, C₃H₇, C₄H₉, C₆H₅CH₂, substituted phenyl or heteroaryl, YH-(CH₂-CH₂Y)_k-CH₂CH₂-, Y = O, or NH, k = 0-10; heteroaromatic cation of the following type N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkylthiazolinium; or of at least one associate of a dichroic anionic dye with surface-active cation and/or

amphoteric surfactant of general formula:

$(M^+O^+X^-)_m[M^+O^+X^-(CH_2)_p-Z]_g\{Chromogen\}(-Z-(CH_2)_p-XO^+SUR)_f(XO^+SUR)_{ib}$
wherein **Chromogen** is a dye chromophore system; $Z = SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2$; $p = 1 - 10$; $f = 0-4$; $g = 0-9$; $n = 0-4$, $m = 0-9$, $n+f = 1-4$; $m+g = 0-9$; $X, X' = CO, SO_2, OSO_2, PO(O^+M^+)$; $M = H$; inorganic cation of the following type: $NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co$; organic cation of the following type: $RNH_3, RR'NH_2, RR'R''NH, RR'R''R^+N, RR'R''R^+P$, where $R, R', R'', R^+ =$ alkyl or substituted alkyl of the following type: $CH_3, C_1C_2H_4, HOC_2H_4, C_2H_5, C_{10}H_{21}, C_6H_5CH_2$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)_k-CH_2CH_2$, $Y = O$ or NH , $k = 0-10$; heteroaromatic cation of the following type: N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkythiazolinium; K^+SUR^+ , $SUR = KSUR^+, K^+SUR^+, AmSUR$, wherein $KSUR^+$ and K^+SUR^+ are surface-active cations and $AmSUR$ is an amphoteric surfactant;

or of at least one associate of a dichroic cationic dye with a surface-active anion and/or an amphoteric surface-active dye of general formula:

$(M^+O^+X^-)_m[M^+O^+X^-(CH_2)_p-Z]_g\{Chromogen^+\}SUR$, where **Chromogen** is a dye chromophore system; $Z = SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2$; $p = 1-10$; $g = 0-1$; $m = 0-1$; $m+g=1$; $X = CO, SO_2, OSO_2, PO(O^+M^+)$; $M = H$; inorganic cation of the following type: $NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co$; organic cation of the following type: $RNH_3, RR'NH, RR'R''NH, RR'R''R^+N, RR'R''R^+P$, wherein $R, R', R'', R^+ =$ alkyl or substituted alkyl of the following type: $CH_3, C_1C_2H_4, HOC_2H_4, C_2H_5, C_{10}H_{21}, C_6H_5CH_2$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)_k-CH_2CH_2$, $Y = O$, or NH , $k = 0-10$; heteroaromatic cation of the following type: N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkythiazolinium; $KSUR^+$ is a surface-active cation, $SUR = ASUR, AmSUR$, wherein $ASUR$ is surface active cation and $AmSUR$ is an amphoteric surfactant;

or at least of one associate of a dichroic cationic dye with a surface-active cation and/or amphoteric surfactant of general formula:

$\{Chromogen\}-[Z-(CH_2)_p-X^+RR'R''SUR]_n$, where **Chromogen** is a dye chromophore system; $Z = SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2$; $p = 1-10$; $X = N, P$; $R, R', R'' =$ alkyl or substituted alkyl of the following type: $CH_3, C_1C_2H_4, HOC_2H_4, C_2H_5, C_3H_7$, $SUR = ASUR$ or $AmSUR$, wherein $ASUR$ is a surface-active anion and $AmSUR$ is an amphoteric surfactant; $n = 1-4$;

or of at least one water-insoluble dichroic dye and/or a pigment that do not contain ionogenic

Sub
D2
D2
Butyl

or hydrophilic groups;
or of at least one low-molecular thermotropic liquid-crystal substance being a dichroic dye or containing, as a component, a liquid-crystal and/or a dichroic dye other than liquid-crystal dye and vitrified in this or other manner, for example after application of a layer by curing using ultraviolet radiation;
or of at least on polymer material other than liquid-crystal one, with a controlled degree of hydrophilicity, dyed with a dichroic dye and/or an iodine compounds;
or of at least one polymer thermotropic liquid-crystal and/or non-liquid crystal substance comprising solved in mass and/or chemically bonded with a polymer chain dichroic dyes; or at least of one dichroic dye capable of forming a lyotropic liquid-crystal phase;
or at least of one dichroic dye of the polymer structure;
or at least of one water-soluble organic dye capable of forming a stable lyotropic liquid-crystal phase of general formula {Chromogen} (SO₃M)_n, where **Chromogen** is a dye chromophore system; M = H⁺ or a inorganic cation;
and mixtures thereof.

Please add the following new claims

164. (New) A polarizer, comprising at least one birefringent and anisotropically absorbing light layer having at least one refraction index that grows as the polarizable light wavelength increases at least at a certain range of the wavelengths, wherein at least one birefringent and anisotropically absorbing light layer has the thickness whereat an interference extremum is realized at output of the polarizer at least for one light linearly-polarized component.

165. (New) The polarizer according to claim 164, wherein at least one birefringent and anisotropically absorbing light layer has at least one refraction index that is directly proportional to the polarized light wavelength at least at a certain range of the wavelengths.

166. (New) The polarizer according to claim 164, wherein the thickness of at least one birefringent and anisotropically absorbing light layer satisfies the condition of obtaining, at output of the polarizer, the interference minimum for one linearly-polarized light

component and the interference maximum for the other orthogonal linearly-polarized light component.

167. (New) The polarizer according to any one of claims 164-165, further comprising an optically isotropic layer, whose refraction index coincides with, or maximally proximate to one of indices of the birefringent anisotropically absorbing layer.

168. (New) The polarizer according to any one of claims 164-165, further comprising birefringent layer one refraction index of which layer coincides with, or maximally proximate to one of indices of the birefringent anisotropically absorbing layer, and the second refraction indices of the birefringent layer and birefringent anisotropically absorbing layer differ from one another.

169. (New) The polarizer according to any one of claims 164-166, wherein at least one birefringent anisotropically absorbing layer is formed:

of at least one organic salt of a dichroic anionic dye having general formula:

{**Chromogen**} - (XO⁻M⁺)_n, where **Chromogen** is a dye chromophore system; X = CO, SO₂, O₂SO₂, OPO(O⁻M⁺); M = RR'NH[2]₂, RR'R''NH; RR'R''R[^]N; RR'R''[^]P when R, R', R'', R[^] = CH₃, ClC₂H₄, C₂H₅, C₃H₇, C₄H₉, C₆H₅CH₂, substituted phenyl or heteroaryl; YH-(CH₂-CH₂Y)_m-CH₂CH₂, Y=O, or NH, m=0-5; N-alkylpyridinium cation, N-alkylchinolinium cation, N-alkylimidazolinium cation, N-alkylthiazolinium cation, etc.; n = 1-7;

or of at least one asymmetric mixed salt of a dichroic anionic dye with different cations of general formula:

(M₁⁺O⁻X'⁻)_m[M₁⁺O⁻X'⁻-(CH₂)_p-Z]_g{**Chromogen**}-[Z-(CH₂)_p-XO⁻M⁺]_f(XO⁻M⁺)_n, where: **Chromogen** is a dye chromophore system; Z = SO₂NH, SO₂, CONH, CO, O, S, NH, CH₂ p = 1 - 10; f = 0-9; g = 0-9; n = 0-9, m = 0-9, n+f = 1-10; m+g = 1-10; X, X' = CO, SO₂, O₂SO₂, PO(O⁻M⁺); M ≠ M₁, M, M₁ = H; inorganic cation of the following type: NH₄, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co, etc.; organic cation of the following type: RNH₃, RR'NH₂, RR'R''NH; RR'R''R[^]N, RR'R''R[^]P, where R, R', R'', R[^] = alkyl or substituted alkyl of the following type: CH₃, ClC₂H₄, HOC₂H₄, C₂H₅, C₃H₇, C₄H₉, C₆H₅CH₂, substituted phenyl or heteroaryl, YH-(CH₂-CH₂Y)_k-CH₂CH₂-, Y = O, or NH, k = 0-10; heteroaromatic cation of the following type N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium,

N-alkythiazolinium etc.;

or of at least one associate of a dichroic anionic dye with surface-active cation and/or amphoteric surfactant of general formula:

$(M^+O^-X^-)_m[M^+O^-X^-(CH_2)_p-Z]_g\{\text{Chromogen}\}(-Z-(CH_2)_p-XO^-SUR)_f(XO^-SUR)_n$, where **Chromogen** is a dye chromophore system; $Z = SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2$; $p = 1 - 10$; $f = 0-4$; $g = 0-9$; $n = 0-4$, $m = 0-9$, $n+f = 1-4$; $m+g = 0-9$; $X, X' = CO, SO_2, OSO_2, PO(OM^+)$; $M = H$; inorganic cation of the following type: $NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co$, etc.; organic cation of the following type: $RNH_3, RR'NH_2, RR'R''NH$; $RR'R''R^*N$; $RR'R''R^*P$, where $R, R', R'', R^* =$ alkyl or substituted alkyl of the following type: $CH_3, ClC_2H_4, HOC_2H_4, C_2H_5, C_{10}H_{21}, C_6H_5CH_2$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)_k-CH_2CH_2-$, $Y = O$, or NH , $k = 0-10$; heteroaromatic cation of the following type: N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkythiazolinium, etc.; K^+SUR^+ , $SUR = KSUR^+, K'SUR^+, AmSUR$, where: $KSUR^+$ and $K'SUR^+$ are surface-active cations, $AmSUR$ is amphoteric surfactant;

or of at least one associate of a dichroic cationic dye with a surface-active anion and/or an amphoteric surface-active dye of general formula:

$(M^+O^-X^-)_m[M^+O^-X^-(CH_2)_p-Z]_g\{\text{Chromogen}^+\}SUR$, where **Chromogen** is a dye chromophore system; $Z = SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2$; $p = 1-10$; $g = 0-1$; $m = 0-1$; $m+g=1$; $X = CO, SO_2, OSO_2, PO(OM^+)$; $M = H$; inorganic cation of the following type: $NH_4, Li, Na, K, Cs, Mg, Ca, Ba, Fe, Ni, Co$, etc.; organic cation of the following type: $RNH_3, RR'NH$; $RR'R''NH$; $RR'R''R^*N$; $RR'R''R^*P$, where $R, R', R'', R^* =$ alkyl or substituted alkyl of the following type: $CH_3, ClC_2H_4, HOC_2H_4, C_2H_5, -C_{10}H_{21}, C_6H_5CH_4$, substituted phenyl or heteroaryl, $YH-(CH_2-CH_2Y)_k-CH_2CH_2$, $Y = O$, or NH , $k = 0-10$; heteroaromatic cation of the following type: N-alkylpyridinium, N-alkylchinolinium, N-alkylimidazolinium, N-alkythiazolinium, etc.; $KSUR^+$ (surface-active cation), $SUR = ASUR, AmSUR$, where: $AmSUR$ is surface active cation, $AmSUR$ is amphoteric surfactant;

or at least of one associate of a dichroic cationic dye with a surface-active cation and/or amphoteric surfactant of general formula:

$\{\text{Chromogen}\}-[Z-(CH_2)_p-X^+RR'R''SUR]_n$, where **Chromogen** is a dye chromophore system; $Z = SO_2NH, SO_2, CONH, CO, O, S, NH, CH_2$, $p = 1-10$; $X = N, P$; $R, R', R'' =$ alkyl or substituted alkyl of the following type: $CH_3, ClC_2H_4, HOC_2H_4, C_2H_5, C_3H_7$, $SUR = ASUR, AmSUR$, where: $ASUR^-$ is a surface-active anion, $AmSUR$ is an amphoteric surfactant; $n =$

1-4;

or of at least one water-insoluble dichroic dye and/or a pigment that do not contain ionogenic or hydrophilic groups;

or of at least one low-molecular thermotropic liquid-crystal substance being a dichroic dye or containing, as a component, a liquid-crystal and/or a dichroic dye other than liquid-crystal dye and vitrified in this or other manner, for example after application of a layer by curing using ultraviolet radiation;

or of at least on polymer material other than liquid-crystal one, with a controlled degree of hydrophilicity, dyed with a dichroic dye and/or an iodine compounds;

or of at least one polymer thermotropic liquid-crystal and/or non-liquid crystal substance comprising solved in mass and/or chemically bonded with a polymer chain dichroic dyes; or

at least of one dichroic dye capable of forming a lyotropic liquid-crystal phase;

or at least of one dichroic dye of the polymer structure;

or at least of one water-soluble organic dye capable of forming a stable lyotropic liquid-crystal phase of general formula {**Chromogen**} (SO₃M)_n, where **Chromogen** is a dye chromophore system; M - H⁺, a inorganic cation;

or of their mixes.

170. (New) A liquid crystal display element comprising:

first and second plates;

a liquid crystal material between the first and second plates; and

a polarizer comprising a birefringent anisotropically absorbing layer, wherein the birefringent anisotropically absorbing layer is formed of at least one organic salt of a dichroic anionic dye and has a refraction index that increases as the wavelength of polarizable light increases over a range of the spectrum of wavelengths between said first and second plates.

171. (New) A liquid crystal display element comprising:

first and second plates;

a liquid crystal material between the first and second plates; and

a polarizer comprising at least one birefringent and anisotropically absorbing light layer having at least one refraction index that grows as the polarizable light wavelength increases at least at a certain range of the wavelengths, wherein at least one birefringent and

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Contd

anisotropically absorbing light layer has the thickness whereat an interference extremum is realized at output of the polarizer at least for one light linearly-polarized component between said first and second plates.

A complete list of the currently pending claims is attached hereto as Appendix B for the Examiner's convenience.
